

ST. PASCAL DE BAYLON

GROUND WATER SURVEY

UPDATE

1983



Ontario

Ministry
of the
Environment

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ST. PASCAL DE BAYLON
GROUND-WATER UPDATE

At the request of the District Officer of the Cornwall District Office, a re-examination of ground-water conditions at St. Pascal De Baylon was carried out.

Aquifers

The main aquifer (s) identified in the Ministry of the Environment's 1976 hydrogeologic report in the St. Pascal area was a basal complex of sands and gravels and underlying limestone and shale rock. The sands and gravels were described as discontinuous and thin (2.4 m). As reported in the updated Summary of Water Well Records, Table 5 to this report, the sand and gravel formations that overlie the rock's surface generally average 1.7 m in thickness. Greater thicknesses (Well 2099) have been reported in the logs of a few wells in Concessions 4 and 5 drilled in the landslide areas shown by Richard on map 1507A. Test wells (Table 4) in the landslide area northeast of St. Pascal, Concession 1, indicate that the great thicknesses of surficial "sands and gravels" reported in these well logs may be in fact low permeability "silty sands". The basal sand and gravel aquifer is reported in the logs of some area municipal wells and area test wells (Tables 1 to 3) but nowhere could it be developed into a suitable water supply. The testing of this aquifer by the Ministry of the Environment at Hammond (Well 1733) was also unsuccessful.

Aquifers exist in the bedrock in the Billings and Eastview formations, of Paleozoic age but the Ottawa Formation (Drawing No. 3) serves as the main source for area domestic water supplies. Aquifers in the Ottawa formation also provide water for the municipal water-supply requirements of Clarence Creek, Hammond, and Bourget (Drawing No. 1). The rock penetration of these municipal wells varies from a maximum of 61.0 m at Clarence Creek to 4.3 m at Bourget, albeit the overburden thickness is less than 13.4 m and 39.0 m in each case.

MOE
STP
GRO

APJH

Well Yields

Domestic water wells in the St. Pascal area are almost entirely completed in the rock, most likely to facilitate well construction. The average calculated theoretical specific capacity is low being generally less than 0.24 L/s/m, while the theoretical well yield averages 1.5 L/s, and varies from less than .08 L/s to 5.6 L/s. The high static water levels of most St. Pascal water wells has allowed domestic water requirements to be met by shallow lift well pumps even though a large number of older wells are only 51 mm in diameter. The hydraulic properties of the wells and the regional hydrogeology in and around St. Pascal do not demonstrate that an area of better potential for ground-water development exists.

All the municipal wells in the area yield in the order of 1.9 L/s or less, except at Bourget where yields of 2.7 L/s and 6.1 L/s are reported (Table 3). Test-drilling programs at Bourget and Clarence Creek have been marginally successful in developing low yielding wells in the rock while at Hammond, test drilling for a municipal water supply was unsuccessful.

Ground-Water Quality

The quality of ground water from aquifer(s) in the St. Pascal area established by the well-water sampling program in 1976 showed unacceptably high naturally-occurring concentrations of chloride, sodium, and iron in some domestic wells. Also well driller's logs indicate hydrogen sulphide is present at depth. The chemical analysis results do not permit a relationship to be drawn between well location nor well depth and the concentration of chloride; however, generally experience has shown that the deeper the well, the greater the possibility that the chloride and iron concentrations will be high. A similar relationship exists for hydrogen sulphide.

Outside the St. Pascal area there is some evidence that geological faults may contribute significantly to the deterioration in ground-water quality. Some areal variations in the water quality in the aquifer(s) has also been shown and is manifested by higher concentrations of chloride and sodium.

More complete chemical analyses of ground water from aquifers in the Ottawa Formation is provided in the aquifer testing programs of the municipal well-water supplies at Clarence Creek, Hammond, and Bourget (Table 6). High concentrations of iron, $> .3$ mg/L, sodium > 200 mg/L, and hydrogen sulphide > 1 mg/L, and the blending of waters of different quality from different aquifers in the well bore, has complicated treatment processes at Clarence Creek. The well-water quality at Bourget, with the exception of the iron concentration, was generally good, but recent analyses indicate there may be an increase (Table 6) in the concentration of sodium and chloride with pumping time. The December, 1982 routine analysis indicated the concentration of chloride in municipal well #2 was 117 mg/L, up from a constant 19 mg/L at construction in 1975, but still well below the Ministry of the Environment objective of 250 mg/L. The 1982 analysis of a "raw" water sample from a communal water supply servicing a portion of Hammond showed a generally high chloride ion concentration of 800 mg/L.

Summary

The principal aquifer in the St. Pascal area is the sand and gravel/rock (Ottawa Fm.) complex at the bedrock contact. Based upon theoretical domestic well yields and the equipped pump capacities of area municipal wells, well yields from these aquifers will be generally low, but some wells may be expected to yield up to 1.9 L/s from depths to 61.0 m in the rock.

Hydrogeologic data on the aquifer(s) including well-log and specific-capacity data are insufficient to permit the location of areas where better well development potential exists.

The discontinuity of the basal sands and gravels and the apparent lack of substantial thicknesses of saturated formation, make the development of a gravel-pack or naturally-developed municipal well difficult.

Domestic and municipal (Clarence Creek) well logs indicate that the deeper penetrating rock wells are likely to intercept several aquifers with different chemical quality parameters which may increase the difficulties of water treatment.

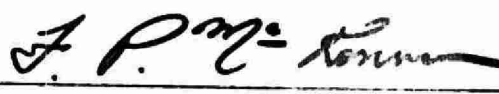
The 1976 well water sampling program and the municipal well-water chemical analyses results indicate that well water from rock aquifers may be highly mineralized, and contain high concentrations of chloride, sodium, iron, and hydrogen sulphide.

The apparent increase in chloride ion concentration with pumping time at Bourget may indicate that large withdrawals (6.1 L/s from Well 2219) of ground water in any one area may cause the migration of poorer quality waters in the aquifer(s) to the pumping center.

As the water quality data at Bourget illustrates, regardless of the chemical analyses results obtained during well construction aquifer testing programs, the possibility exists that future changes in well water quality may occur and that these changes may not always be apparent from that well water sampling data alone.

Conclusions

Quantitatively and qualitatively the possibility of municipality well development does not appear to be favourable; therefore, it would seem, as suggested in the 1976 ground-water survey report, that alternate sources should be investigated prior to embarking on a ground-water exploration program.

 25/2/83

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GROUNDWATER DEVELOPMENT GROUP

WATER RESOURCES BRANCH

TABLE OF SYMBOLS

●	Drilled well in overburden
● 	Drilled well in bedrock
⊗	Abandoned drilled well or well site in overburden
⊗ 	Abandoned drilled well or well site in bedrock
● ↗	Flowing drilled well in overburden
● ↗	Flowing drilled well in bedrock
⊗ ↗	Abandoned flowing drilled well or well site in overburden
⊗ ↗	Abandoned flowing drilled well or well site in bedrock
■	Bored or dug well
□	Abandoned bored or dug well or well site
▼	Well point
▽	Abandoned well point or well-point site
⊙	Drilled municipal well in overburden
⊙ 	Drilled municipal well in bedrock
⊙ ↗	Flowing drilled municipal well in overburden
⊙ ↗	Flowing drilled municipal well in bedrock
⊙	Abandoned drilled municipal well in overburden
⊙ 	Abandoned drilled municipal well in bedrock
⊙ ↗	Abandoned flowing drilled municipal well or well site in overburden
⊙ ↗	Abandoned flowing drilled municipal well or well site in bedrock
○	Test hole drilled in overburden
○ 	Test hole drilled in bedrock
✱	Depth at which water was found

GROUNDWATER DEVELOPMENT GROUP

WATER RESOURCES BRANCH

STANDARD ABBREVIATIONS

<u>Materials</u>		<u>Description</u>	
Bldr	- boulders	Cem	- cemented
Cl	- clay	Cln	- clean
Gr	- gravel	Clr	- clear
Hp	- hardpan	Cly	- clayey
Pbl	- pebble	Cse	- coarse
Qsd	- quicksand	Dk	- dark
Sd	- sand	Dty	- dirty
Slt	- silt	Lt	- light
Stns	- stone(s)	F	- fine
Ts	- topsoil	Fr	- fresh
Cht	- chert	Gry	- gravelly
Dol	- dolomite	Med	- medium
Gte	- granite	Hd	- hard
Gnst	- greenstone	Lay	- layer(s)
Ls	- limestone	Lse	- loose
Rk	- rock and bedrock	Lge	- large
Sh	- shale	Min	- mineral
Sdst	- sandstone	Sa	- salty
Qtz	- quartz	Sdy	- sandy
		Shy	- shaly
		Sltty	- silty
		Sm	- small
		Sf	- soft
		Str	- streaks
		Sty	- stony
		S	- sulphur
		Bf	- buff
		Bl	- blue
		Bn	- brown
		Gn	- green
		Gy	- grey
		Pk	- pink
		W	- water or water-bearing
		Wh	- white
		Yl	- yellow
<u>Water Use</u>			
Ab	- abandoned		
C	- commercial		
D	- domestic		
In	- industrial		
Irr	- irrigation		
M	- municipal		
P	- public supply		
S	- stock		
TH	- test hole		
TW	- test well		



TABLE I

SUMMARY OF WATER WELL RECORDS
MUNICIPAL WELLS - CLARENCE

Well No.	Location and Elevation (MSL)		Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log. Remarks
									Rate (gpm) (Hrs) Duration	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell Con. Lot																
#1	Clarence Twp.	V 5	Village of Clarence Creek	Montreal 1950-51		10	210			Flows +2.6						M	r-well 1+4 = 30'
	(Village of Clarence Creek)																
228 #2	"	VI 6	Village of Clarence Creek	J.B. Dufresne & Co. Ltd. 68		6	150	46	25 .5	35	125	—	—	—	S	M	O C12 Sd 4 C1 44 Sh 150 *55+65+115
1627 #3	"		Village of Clarence Creek	McLean Water Supply Ltd. 74		8	212	20	25 48		93	—	—	—	S	M	O Earth Broken Rk 5 Ls 212 *35+150+212
1714 #4	"	V 5	Village of Clarence Creek	McLean Water Supply Ltd. 74		8	250	21	22 24	+10	—	—	—	—	Fr	M	O Ls 210 Bk Sh 214 Ls 250 *75+210+240



TABLE 2

SUMMARY OF WATER WELL RECORDS
TEST WELLS AND MUNICIPAL WELLS — HAMMOND

Well No.	Location and Elevation (M.S.L.)	Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log. Remarks
								Rate (gpm) (Hrs) Duration	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell	Con. Lot														
1731 TW2/75	Clarence Twp. (Hammond)	VII 15	M.O.E.	I.W.S. 75	♀ 8	264	181	— —	—	—	—	—	—	—	Ab	OF Bn Sd 12 Sily Gy Cl 21 Fairly Hd Gy + Red Cl 170 Broken Sh 171 Bk Sh 264
1733 TW4/75	"	VII 15	M.O.E.	I.W.S. 75	♀ 2	194	183	8 7	—	125	—	—	—	Sa	Ab	0 Dty Bn Sd 24 Sdy Gy Cl 30 SF Gy + Red Cl 128 Hd Gy + Red Cl 179 Bk Gr Sd Bldrs + Cl 189 Bk Sh or Ls 194 * —
1732 TW3/75	"	VII 17	M.O.E.	I.W.S. 75	♀ 8	303	162	1 1	157	191	—	—	—	—	Ab	0 Dty Red Sd 4 Sdy Gy Cl 6 SF Sticky Gy Cl 132 Broken Bk Gr 135.5 Gy Cl + small lay Gr Sh 148 Bk Sh + Gte 155 Hd + SF Lay Bk Sh + Ls 303 * —
1730 TW1/75	"	VIII 13	M.O.E.	I.W.S. 75	♀ 8	204	121	— —	—	—	—	—	—	—	Ab	0 Dty Bn Sd 3 SF Sdy Gy Cl 13 SF Gy + Red Cl 138 SF Bk Sh Gr + Gy Cl 150 Hd Sh or Bldrs 152 SF Bk Sh 185 Lay Bk Sh + Ls 204
252	"	IX 15	Hammond Water Works	G. Charbonneau Diamond Cable Drilling 65	⊙ 5.25	189	1	17 72	30	50	5	5.25	—	Fr	M	0 Yl Sd 8 Bl Cl 153 Cse Gr + Sd 170 Bn Slate 189 * 165



TABLE 3

SUMMARY OF WATER WELL RECORDS
TEST WELLS AND MUNICIPAL WELLS - BOURGET

Well No	Location and Elevation (M.S.L.)		Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log, Remarks
									Rate of Pumping (gpm) (Hrs) Duration	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell Con. Lot																
218 TW1-66	Clarence Twp. (Bourget)	V 18	Village of Bourget	F.E. Johnston Drilling Co. Ltd. 66	⊙	10	156	120	35 10	26.5	80	—	—	—	Fr	M	OSd 2 Bk Muck 3 Sd 12 Bl Cl 49 Bn Red Cl 68 Bl Cl 116 Sh 156 *120 + 137 + 151
2219 TW1-75	"	V 18	M.O.E.	Ramon Casselmann 75	⊙	8	142	136	813 24	57.2	—	—	—	—	Fr	M	OF-Med Sd Lay Sit Lenses 127 Cse Gr Bldrs 128 Sh thinly bedded + fissile 142 *128
2223 TW3-75	"	V 19	M.O.E.	Ramon Casselmann 75	♀	8	142	119	25 2	23	—	—	—	—	Sa	Tw Ab	OSd 9 Cl 107 Cl + Bldrs 109 Cl Bldrs Sd + Gr 114 Ls Fossiliferous *109
2221 TW2-75	"	VI 18	M.O.E.	Ramon Casselmann 75	♀	8	147	112	— —	48	—	—	—	—	—	Tw	OBn Sd 10 Gy Sd Cl Str 100 Gr + Sd Bldrs 110 SF Sh Lay Fissile 147 *110



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TABLE 4

SUMMARY OF WATER WELL RECORDS
TEST WELLS - ST. PASCAL DE BAYLON

Well No.	Location and Elevation (M.S.L.)		Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log. Remarks
									Rate (gpm) (Hrs) Duration	Static Water Level (ft.) From ground surface	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell Con. Lot																
SP1-82	Clarence Twp. 251.4	I 8	McNeely Engineering Ltd.		o	2	115									TH	0 Sity Sd 19.95 Sity Cl 115
SP2-82	" 251.45	I 8	"		o	2	20	20		4.54						TH	0 Sity Sd 20 * 4.54
SP3-82	" 252.50	I 8	"		o	2	20	20		8.54						TH	0 Sity Sd 20 * 8.54
SP4-82	" 250.55	I 8	"		o	2	8	8		4.42						TH	0 Sity Sd 8 * 4.42
SP5-82	" 247.45	I 8	"		o	2	13	13		0.61						TH	0 Sity Sd 13 * 0.61
SP6-82	" 250.05	I 8	"		o	2	19	19		10.76						TH	0 Sity Sd 19 * 10.76



TABLE 5

SUMMARY OF WATER WELL RECORDS
DOMESTIC WELLS - ST. PASCAL DE BAYLON AREA

Well No.	Location and Elevation (M.S.L.)			Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log. Remarks
										Rate (gpm) (Hrs) Duration	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell	Con.	Lot															
2254	Clarence Twp. 250'	2	7	Clement, Gerard	Maurice Coyr Ltd. 78	●	6	66	61	10 1	25	40	—	—	—	Fr	D	0 Bn Sdy soil 2 Red Cl 24 Bl Cl 60 Gy Gr 63 Bk Ls 66 * 64
2100	" 215'	2	11	Trudel, Yvon	G. Charbonneau & Son Drilling Ltd. 77	●	6	200	200	2 1	30	195	—	—	—	Sa	D	0 Yl Cl 12 Bl Cl 125 Gy Gr 131 Bk Slate 200 * 200
2230	" 190'	2	15	Lalonde, Robert	G. Charbonneau & Son Drilling Ltd. 78	●	6	80	75	8 2	15	50	—	—	—	Sa	St	0 Yl Cl 7 Red Cl 16 Bl Cl 69 Very FGy Gr 74 Gy Slate 80 * 80
2231	" 190'	2	15	Lalonde, Gaëton	G. Charbonneau & Son Drilling Ltd. 78	●	6	95	80	42 2.25	10	30	—	—	—	Sa	D	0 Yl Cl 8 Red Cl 18 Bl Cl 65 Gy Sd 75 Gy Gr 79 Gy Slate 95 * 95



TABLE 5

SUMMARY OF WATER WELL RECORDS

Well No	Location and Elevation (M.S.L.)		Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log, Remarks
									Rate (gpm) Duration (Hrs)	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell Con. Lot																
2082	Clarence Twp. 220'	3 3	Crombie, Peter S.	Ramon H. Casselman 77	●	6	165	145	10 1	15	120	—	—	—	Fr	0	0 Lse packed Bn Sd 12 Hd packed Bn Cl 139 Lay Gy Rk Lay 144 Hd Gy Ls Rk 165 * 155
2124	" 200'	3 4	Vindon, Roger	Maurice Cayer Ltd. 78	●	6	126	125	12 1.9	45	75	—	—	—	Fr	St	0 Bn Ts 3 B1 Cl 121 Bk Sd Gr 125 Gy Ls 126 * 126
2201	" 190'	3 8	Deault, Rodolphe	Maurice Cayer Ltd. 79	●	6	90	65	6 1.5	17	77	—	—	—	Fr	0	0 Yl Sd 9 B1 Cl 61 Gy Sd Cl 65 Gy Sd st 90 * 86
2253	" 175'	3 9	Viam, Normand	Maurice Cayer Ltd. 79	●	6	130	85	2 1	40	125	—	—	—	Fr	0	0 Gy Cl 20 Gy Sd 85 Bk Ls 130 * 85



TABLE 5

SUMMARY OF WATER WELL RECORDS

Well No.	Location and Elevation (M.S.L.)			Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log, Remarks
										Rate gpm (Hrs) Duration	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
2102	Russel Clarence Twp. 200'	4	3	Beauchamps, Oennis	G. Charbonneau & Son Drilling Ltd. 77	●	6	138	135	40 1	32	50	—	—	—	S	0	O Yl Cl 20 Bl Cl 125 Gy Gr Qldrs 134 Gy Ls 138 *138
2465	" 175'	4	10	Saumure, Jules & Pierre	G. Charbonneau & Son Drilling Ltd. 80	●	6	87	84	35 2	23	70	—	—	—	Fr	0	O Yl Sd fill 4 Gy Sd & Cl 25 Gy Sd 35 Gy Cl & Sd 55 Gy Cl 78 Bn Rk Slate 87 *87
2076	" 170'	4	15	Brazeau, Robert	Cayer Well Drilling 77	●	6	68	65	20 1.17	7	15	—	—	—	Fr	0	O Bn Cl 30 Bl Cl 60 Gy Gr 65 Rk 68 *65



TABLE 5

SUMMARY OF WATER WELL RECORDS

Well No	Location and Elevation (M.S.L.)			Owner	Well Contractor Year Completed	Well Type or Source	Well Diameter (in.)	Total Well Depth (ft.)	Total Cased Depth (ft.)	Pumping Test Results			Well Screen			Water Quality	Use	Geologic Log, Remarks
										Rate (gpm) (Hrs) Duration	Static Water Level (ft.)	Pumping Level (ft.)	Length (ft.)	Diameter (in.)	Slot Size (in.)			
	Russell Con. Lot																	
2099	Clarence Twp. 190'	5	7	Groulx, Yves	G. Charbonneau & Son Drilling Ltd. 77	●	6	46	45	30 1	10	30	—	—	—	Fr	0	0 Yl Sd 15 Gy Sd 36 Gy Gr 44 Gy Ls 46 * 46
2225	" 195	5	13	Bernard, Roy	G. Charbonneau & Son Drilling Ltd. 78	●	6	65	57	4 1	12	60	—	—	—	Fr	St	0 Yl Cl 15 Bl Cl 50 Bn Gr 55 Bn Slate 65 * 65
2207	" 210'	5	16	Lavoie, Colette	Gilles Bourgeois 78	●	6	54	54	30 1	16	25	—	—	—	Fr	0	0 SF Red Cl 14 SF Bl Sdy Cl 39 Packed Gy Gr 54 * 54
2208	" 210'	5	17	Lavoie, Ovila	Gilles Bourgeois 78	●	6	96	88	5 1	30	80	—	—	—	Fr	St	0 SF Red Cl 14 SF Bl Sdy Cl 42 Packed Gy Gr 88 Hd Bk Rk 96 * 91



Ontario

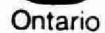
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TABLE 6

SUMMARY OF CHEMICAL ANALYSES OF WATER

All analyses except pH reported in mg/l unless otherwise indicated

Source and Number	Location	Date Sampled	pH at Lab	Apparent Colour in Hazen Units	Turbidity in Formazin Units	Specific Conductance in $\mu\text{mhos/cm}$ at 25°C	Total Dissolved Solids	Total Hardness as CaCO_3	Alkalinity as CaCO_3	Chloride (Cl)	Sulphate (SO_4)	Iron (Total) (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Nitrogen as N				Fluoride (F)	Remarks
																	Free Ammonia	Total Kjeldahl	Nitrite	Nitrate		
T.W. 1-75 (Rated at 60gpm)	BOURGET	Feb 75	9.2	60	6.8	640	445	8	326	17	4	.75	2	<1	138	4.5	.4	1.1	<.02	<.2		Q=81.3gpm 60mins
(Mun. Well #2)		Feb 75	9.2	60	2.6	660	435	9	330	19	4	.40	3	<1	144	4.5	.5	1.0	<.02	<.2	1.3	1440 mins
		29 Dec 82	9.1	34	2.7	980		20	335	117		.25			197							
TW 1-66 (Mun. Well #1)		Feb 75	9.1	60	1.8	780	470	15	332	59	4	.05	5	<1	170	5.9	.2	1.1	<.02	<.2		
		15 JAN 79	8.6	28	1.5	1050		29	360	133	<1.0	.38			218		.19	.82	.008	<0.02		
TW 3-75		Feb 75	8.9	70	45	1850	965	51	402	347	3	3.0	16	2	384	1.1	1.1	1.8	<.02	<.2		Abandoned
Mun. Well #1	CLARENCE CREEK	Aug 15 1974	7.6						295	42	45	.04	36	16	90		<.1	.2	<.02	<.2		After 15 minutes
		Aug 16 1974	7.7	10	1.4	720			298	37	43	.15	52	14	96	7.6	.1	.2	.06	<.2		After 24 hours.
		Aug 8 1979	7.2	32	87	885		216	316	74		.23					.26	.75	.01	<.02		
Mun. Well #2		* APR 2 1971	8.1	60	11	909		271	410	30	86.1	.60	84.9	14.3	115	7.4				.22	0.8	
		Sept 22 1982	8.6	58	1.8	920		200	409	45		.35			130		.59	-	.002	.08		Treated.
Mun. Well #3		Aug 15 1974	7.7						423	51	50	15	34	13	117		.1	1.0	.02	<.2		At startup + 1 min
		Aug 16 1974	8.0	15	17	880			310	73	56	.6	18	8	190	5.6	.1	.2	<.02	<.2		After 24 hours
		Aug 8 1979	7.5	23	23	985		144	326	99		.9					.16	.22	.036	<.02		
Mun. Well #4		Aug 15 1974	7.1						357	76	72	.24	50	11	186		.1	1.0	.02	<.2		After 15 minutes
		Aug 16 1974	7.9	5	.55	1160			327	123	100	.15	18	11	230	5.4	<.1	.3	.02	<.2		After 24 hours



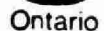
Environment

SUMMARY OF CHEMICAL ANALYSES OF WATER

All analyses except pH reported in mg/l unless otherwise indicated

[illegible]

1

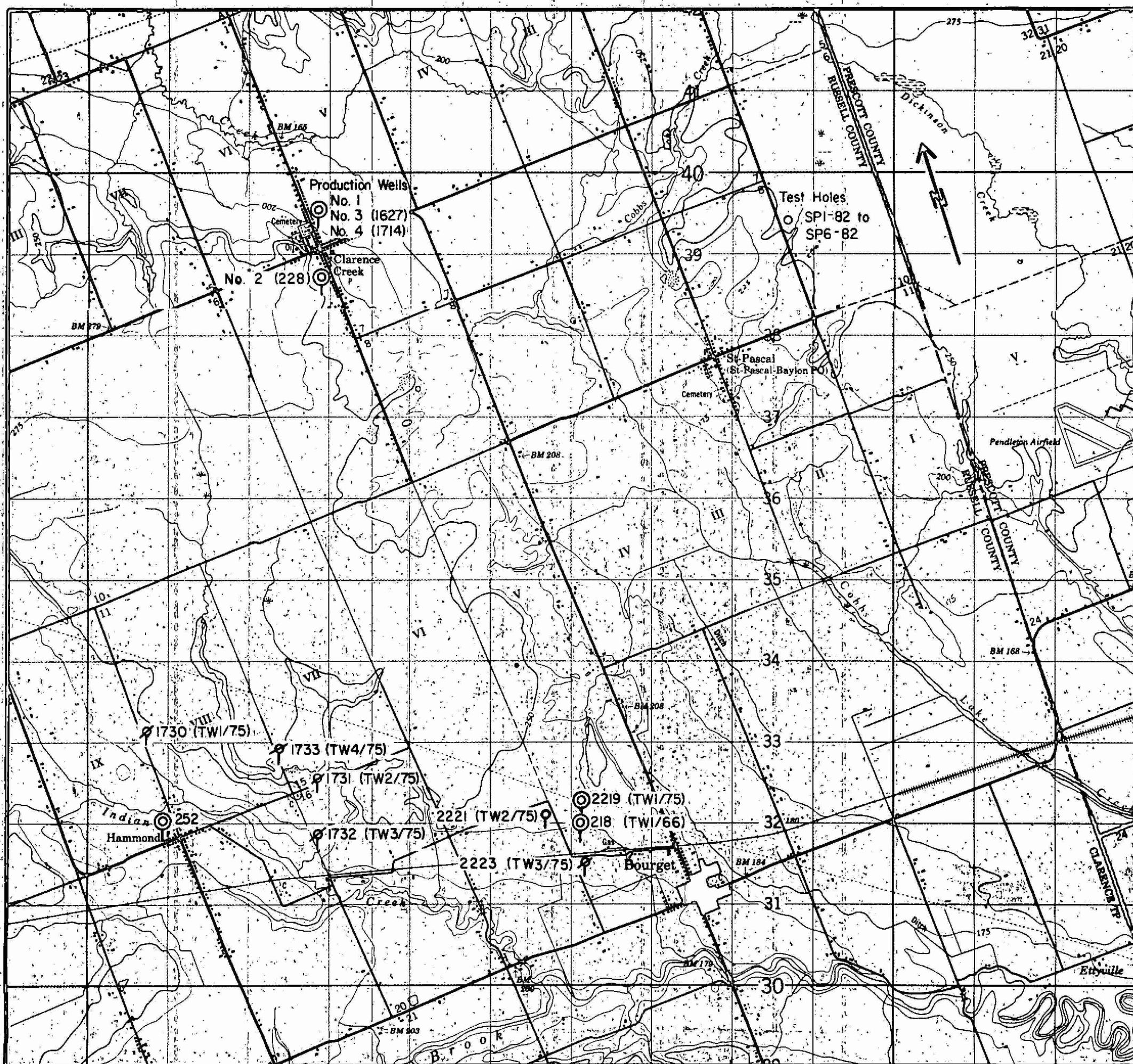


Ontario

SUMMARY OF CHEMICAL ANALYSES OF WATER

All analyses except pH reported in mg/l unless otherwise indicated

[illegible]



LEGEND

- ⊙ Drilled municipal well in bedrock
- ♀ Drilled test well in bedrock
- Drilled test well in overburden
- ♂ Abandoned drilled test well in bedrock

MINISTRY OF THE ENVIRONMENT

Ground Water Survey
LOCATION OF TEST WELLS
AND MUNICIPAL WELLS
IN THE ST. PASCAL AREA

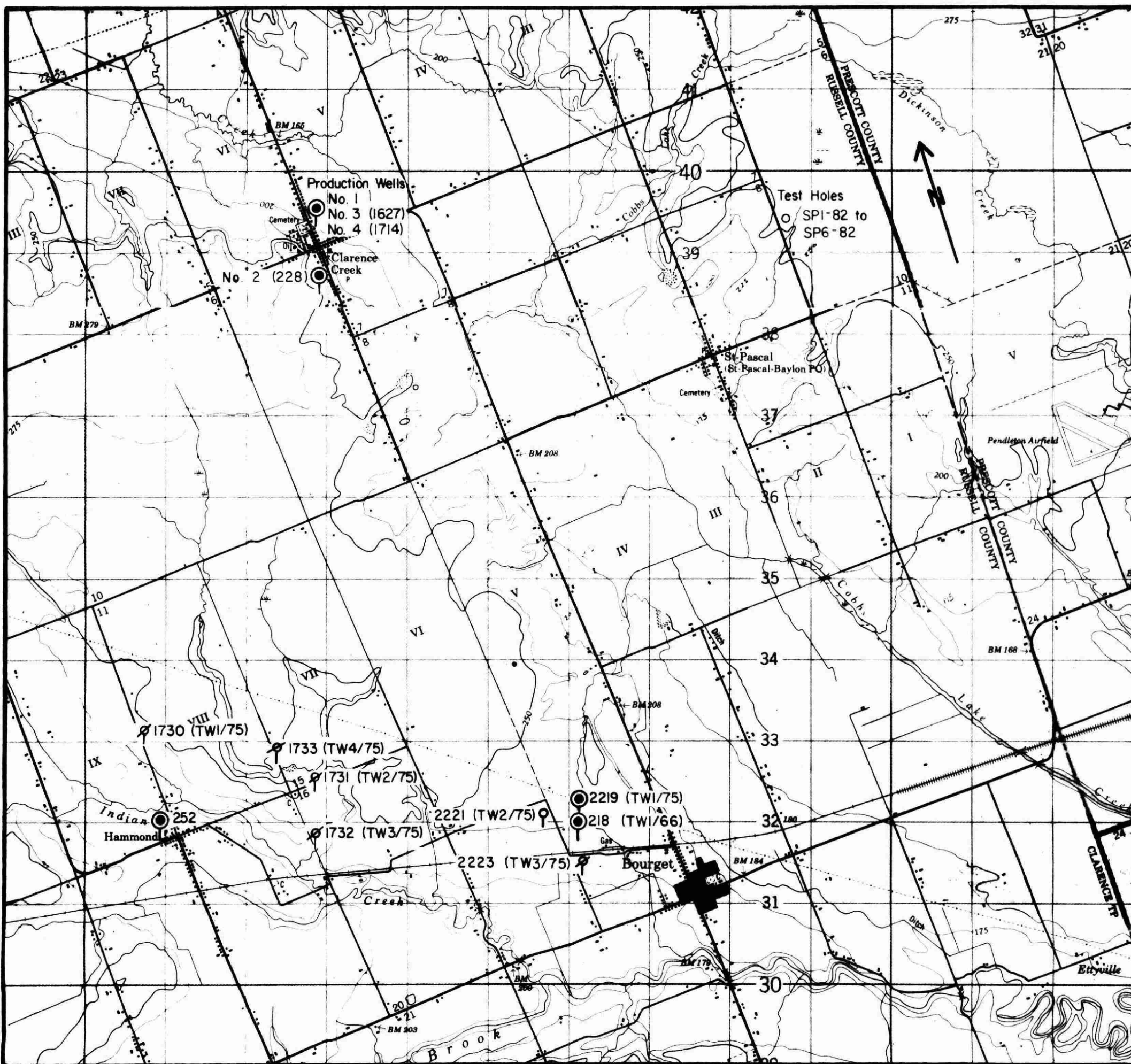
SCALE: 1:50,000

DRAWN BY: J.L.W.

DATE: JAN. 13, 1983

CHECKED BY:

DRAWING NO. 1



LEGEND

- Drilled municipal well in bedrock
- Drilled test well in bedrock
- Drilled test well in overburden
- ⊗ Abandoned drilled test well in bedrock

MINISTRY OF THE ENVIRONMENT

Ground Water Survey
LOCATION OF TEST WELLS
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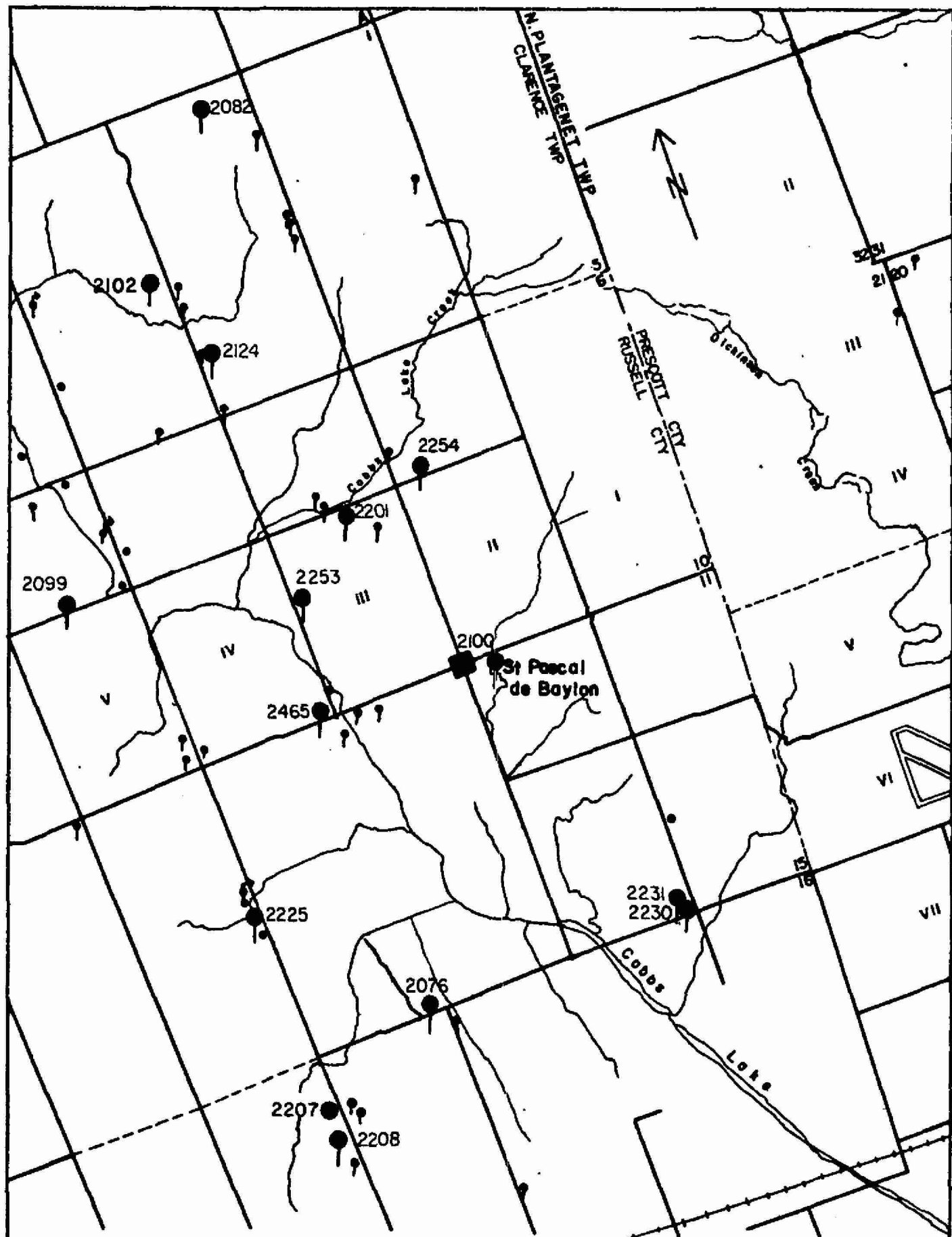
SCALE: 1: 50,000

DRAWN BY: J.L.W.

DATE: JAN. 13, 1983

CHECKED BY:

DRAWING NO. 1



LEGEND

- Drilled Well in Overburden
- Drilled Well in Bedrock
- ┆ Drilled Wells Reported in 1976
Ground-Water Survey by I. R. Steltner

MINISTRY OF THE ENVIRONMENT

Ground Water Survey WELLS DRILLED AFTER 1976 ST. PASCAL DE BAYLON

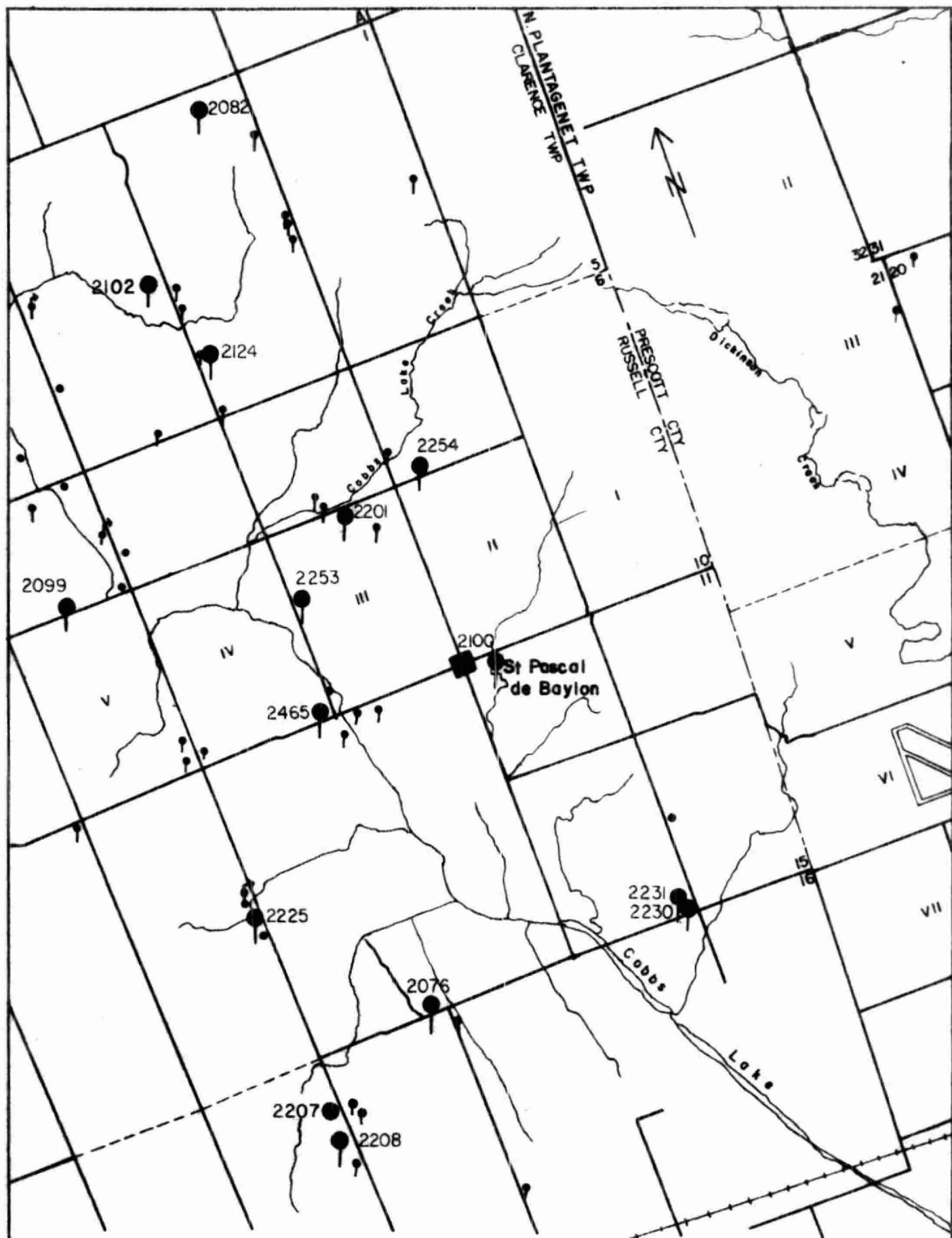
SCALE 1:50,000

DRAWN BY J.L.W.

DATE JAN. 4, 1983

CHECKED BY

DRAWING NO. 2



LEGEND

- Drilled Well in Overburden
- Drilled Well in Bedrock
- ┆ Drilled Wells Reported in 1976
Ground-Water Survey by I. R. Steltner

MINISTRY OF THE ENVIRONMENT

Ground Water Survey
WELLS DRILLED AFTER 1976
ST. PASCAL DE BAYLON

SCALE 1: 50,000

DRAWN BY J.L.W.

DATE JAN. 4, 1983

CHECKED BY

DRAWING NO. 2



(15984)

MOE/STP/GRO/APJH

MOE/STP/GRO/APJH

McKenna, F P

St. Pascal de Baylon

- Ground Water Survey apjh

update

c.1 a aa